High–Performance Virtual Teams

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INTRODUCTION

In the past several decades, we have seen tremendous advancements in the development of communication technology. Since the invention of the Internet in 1969, there has been rapid development of Internet-based communication tools and technologies. This technology has revolutionized business practices by offering another important and effective channel for communication (Foo & Lim, 1997) and has allowed people to work on projects irrespective of their physical location. One resulting business practice that has been adopted in recent years is virtual teamwork. Virtual teams are groups of individuals who work together in different locations (i.e., are geographically dispersed), work at interdependent tasks, share responsibilities for outcomes, and rely on technology for much of their communication (Cohen & Gibson, 2003). The use of virtual teams has become widespread in organizations, and its use is expected to grow (Martins, Gilson, & Maynard, 2004; Powell, Piccoli, & Ives, 2004).

BACKGROUND

In addition to the basic definition of a virtual team, all virtual teams have important characteristics that contribute to their overall success. To analyze the characteristics of the team's situation, Cohen's (1994) model of team effectiveness can be used as an organizing framework. The model identifies strengths and weaknesses that readers can use to inform their own design and operations of effective virtual teams. According to Cohen, there are several broad characteristics that all potentially effect how successful the team will be at meeting its task, and are therefore worthy of examina-

tion. These characteristics are listed in Table 1 and will be examined in detail in the following paragraphs. Although Cohen's team effectiveness model is based on traditional teams (i.e., collocated), these characteristics have been found to be very important in empirical research on virtual teams (Pinsonneault & Caya, 2005; Staples & Cameron, 2004; Wong & Staples, 2004).

TASK DESIGN

Appropriate task design can be a powerful motivator (Cohen, 1994). Both job characteristics theory (e.g., Hackman & Oldman, 1976, 1980) and sociotechnical theory (e.g., Cummings, 1978) suggest that group task design is critical for employee motivation, satisfaction, and performance. Both theories suggest that to positively impact performance and attitudes, the task should be designed according to the criteria specified in Table 2. The design of the virtual team and the structuring of its interactions in the early stages of team development have been found to help team members develop a shared language and shared understanding (Powell et al., 2004).

Job characteristics theory, which has fairly strong empirical support, suggests that task attributes influence effectiveness through their impact on critical psychological states such

Table 1. Characteristics of virtual teams affecting team effectiveness

•   Design of the team's task •   The characteristics of the members of the team •   The processes used by the team •   The organizational context of the team

Table 2. Task design criteria necessary to positively impact performance and attitudes

The task should be designed such that: •   A variety of skills are required (leadership, communication, different technical skills, etc.) such that a team of people are needed to work together to complete the overall task •   A whole and identifiable piece of work exists so that members can see the outcome of their efforts •   It is perceived to have significant impact on the lives of other people so that team members feel their work is important and are motivated to complete the task •   The team has considerable autonomy and independence in determining how the work will be done so that team members feel empowered and responsible for their actions •   The team is provided with regular and accurate feedback such that the team can understand how it is performing and make adjustments as needed

Table 3. Characteristics of the team members that affect team effectiveness

• The size of the team
• The stability of the team, in terms of turnover
• The skills of the members of the team
• The relative locations of the team members (i.e., their virtual-ness)
• The team members' beliefs about their team's capabilities
• The diversity of the team

as motivation and satisfaction with the work. For example, in a case study of one particular business development virtual team, team members commented that high satisfaction and motivation levels reflected the high perceived significance of the project (Wong & Staples, 2004). Positive motivation and satisfaction levels have a positive effect on the quality of the work and overall productivity of the team (i.e., an indirect effect exists between task design and productivity and quality) (Cohen, 1994). Also, the team must have autonomy in determining how their work will be done, because autonomy enhances worker attitudes, behaviors, and performance (Cohen & Bailey, 1997). Finally, when a remote worker receives managerial feedback in the form of advice and help, the worker's effectiveness increases (Staples, 2001). This would result in an increase in virtual team performance.

CHARACTERISTICS OF THE TEAM AND ITS MEMBERS

Team member characteristics that influence the success of a virtual team are listed in Table 3 and are described in more detail next (Cohen, 1994).

The size of the team can affect the ability of the team to do its task (Cohen, 1994). If the team is too big, higher coordination costs result (Goodbody, 2005). If the team size is too small, it will not have the resources needed to complete its work, and team members will be less likely to be committed to the team. The size of the team should also correspond to the stage of the project. For example, a virtual team developing a new product may need more human resources as the product moves from the design stage into the manufacturing stage.

Stability of team membership is necessary for team effectiveness. If turnover is high, time and effort will be spent orientating new members, performance norms will not develop, and performance will suffer. However, some turnover can be beneficial, in that it could revitalize a stagnant team and enhance creativity (Cohen, 1994).

The collective knowledge and skills of a team will greatly impact the team's ability to carry out its task. Such skills include technical skills, information systems (IS) skills, and interpersonal skills. Information systems skills are needed to use the information technology tools and systems that are available to communicate virtually and share information virtually, which is the norm given the lack of face-to-face interaction in virtual teams. Effective communication skills among team members are vital to the effectiveness of a virtual team (Jones, Oyund, & Pace, 2005).

The degree of virtuality (degree of team geographic distribution) could contribute to team effectiveness. Most research on virtual teams suggests that geographic distance among team members is detrimental to team performance (Lu, Watson-Mannheim, Chudoba, & Wynn, 2006). This is presumably due to reduced face-to-face contact, reduced opportunities to build social relationships, and the difficulties of communicating and coordinating work using communication technology rather than communicating face-to-face. A recent meta-analysis (Ortiz de Guinea, Webster, & Staples, 2005) did find evidence that virtualness negatively impacts team processes (such as communication), although the total effect of virtualness on team effectiveness (quality, productivity, and satisfaction) was positive. Therefore, it is especially important to design team processes well in highly virtual teams. Other research has also pointed to the benefits of virtual teaming, such as increased rigor in processes and formal documents (Delone, Espinosa, Lee, & Carmel, 2005).

Team performance beliefs have been found to be a strong predictor of group effectiveness in previous research (Cohen, 1994). For example, team beliefs, assessed via a concept called group potency, were found to be positively related to the commitment to the team, satisfaction with being part of the team, and motivation with the team's tasks (Staples & Cameron, 2004). Therefore, it is important that potency beliefs are high within a team. Team members should know each other's strengths and abilities and celebrate achievements together.

Diversity is a characteristic of virtual teams that may positively influence team effectiveness if managed properly. Virtual teams are often composed of team members from various locations with diverse cultural backgrounds. Diversity may benefit a team because it increases the collective knowledge and expertise of the team. However, team diversity can also pose challenges, and thus it would benefit team members to openly discuss individual differences and expectations in order for new team-level expectations to be established (Gibson & Cohen, 2003).

TEAM PROCESSES

There are several behavioral characteristics pertaining to team process that positively affect team effectiveness. These are coordination, caring (i.e., team spirit), sharing of expertise, and effectiveness of communications. According to Cohen

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